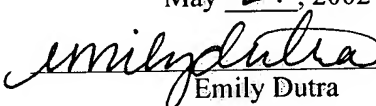


## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:  Laura C. Simmons et al.  Serial No.: 10/020,786  Filed: December 13, 2001  For: PROKARYOTICALLY PRODUCED ANTIBODIES AND USES THEREOF	Group Art Unit: not yet assigned  Examiner: not yet assigned  <div style="text-align: right;">OCT 22 11 03</div> <div style="text-align: center;"> <b>CERTIFICATE OF MAILING</b>  <small>I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner of Patents, Washington, D.C. 20231 on</small>            May 21, 2002              Emily Dutra         </div>
--	---

INFORMATION DISCLOSURE STATEMENT

Assistant Commissioner of Patents  
 Washington, D.C. 20231

Sir:

Applicants submit herewith patents, publications or other information (attached hereto and listed on the attached revised Form PTO-1449) of which they are aware, which they believe may be material to the examination of this application and in respect of which there may be a duty to disclose in accordance with 37 CFR §1.56.

This Information Disclosure Statement is filed in accordance with the provisions of:

- ☒ **37 CFR §1.97(b)**
- within three months of the filing date of the application other than a continued prosecution application under 37 CFR §1.53(d); or
  - within three months of the date of entry of the national stage of a PCT application as set forth in 37 CFR §1.491, or
  - before the mailing of the first Office action on the merits; or
  - before the mailing of the first Office action after the filing of a request for a continued examination under 37 CFR §1.114.
- ☐ **37 CFR §1.97(c)**
- by the applicant after the period specified in 37 CFR §1.97(b), but prior to the mailing date of any of a final action under 37 CFR §1.113, or a notice of allowance under 37 CFR §1.311, or an action that otherwise closes prosecution in the application, and is accompanied by either the fee set forth in 37 CFR §1.17(p) or a statement as specified in 37 CFR §1.97(e), as checked below.
- ☐ **37 CFR §1.97(d)**
- after the period specified in CFR §1.97(c), and is accompanied by the fee set forth in 37

RECEIVED  
 SEP 25 2003  
 TECH CENTER 1600/2900

CFR §1.17(p) and a statement as specified in 37 CFR §1.97(e), as checked below.

[If either of boxes 37 CFR §1.97(c) or 37 CFR §1.97(d) is checked above, the following statement under 37 CFR §1.97(e) may need to be completed.]

- ☐ **37 CFR §1.97(e)** Each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this information disclosure statement.
- ☐ **37 CFR §1.704(d)** Each item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application and the communication was not received by any individual designated in §1.56(c) more than thirty days prior to the filing of this information disclosure statement. Therefore, in accordance with the provisions of 37 CFR §1.704(d), the filing of this information disclosure statement will not be considered a failure to engage in reasonable efforts to conclude prosecution under 37 CFR §1.704.
- ☐ The U.S. Patent and Trademark Office is hereby authorized to charge Deposit Account No. 07-0630 in the amount of \$180.00 to cover the cost of this Information Disclosure Statement under 37 CFR §1.17(p). Any deficiency or overpayment should be charged or credited to this deposit account.

A list of the patent(s) or publication(s) is set forth on the attached revised Form PTO-1449 (Modified).

**A copy of the items on PTO-1449 is supplied herewith.**

Those patent(s) or publication(s) which are marked with an asterisk (\*) in the attached PTO-1449 form are not supplied because they were previously cited by or submitted to the Office in a prior application Serial No. , filed and relied upon in this application for an earlier filing date under 35 USC §120.

☐ BLAST results enclosed:

The undersigned also wishes to bring to the attention of the Examiner BLAST results of computerized alignments of the against sequences contained in the nucleotide and protein databases. The BLAST results are provided in paper form and are identified as reference "BLAST Results A-1- A-()" (nucleotide) and "BLAST Results B-1 - B-()" (protein) on the PTO Form 1449. Applicant requests that these references also be considered and that the Form 1449 be initialed to indicate the Examiner's consideration of the references.

A concise explanation of relevance of the items listed on PTO-1449 is:

☒ not given

☐ given for each listed item

Serial No.: 10/020,786  
Filed: December 13, 2001

Page 3

- ☐ given for only non-English language listed item(s) [Required]
- ☐ in the form of an English language copy of a Search Report from a foreign patent office, issued in a counterpart application, which refers to the relevant portions of the references.

In accordance with 37 CFR §1.97(g), the filing of this information disclosure statement shall not be construed as a representation that a search has been made.

In accordance with 37 CFR §1.97(h), the filing of this information disclosure statement shall not be construed to be an admission that the information cited in the statement is, or is considered to be, material to patentability as defined in 37 CFR § 1.56(b).

In the event that the Office determines a fee to be due where none is specifically authorized in this paper, the U.S. Patent and Trademark Office is hereby authorized to charge Deposit Account No. 07-0630 in the amount of \$180.00 to cover the cost of this Information Disclosure Statement under 37 CFR §1.17(p).

Respectfully submitted,

GENENTECH, INC.

Date: May 21, 2002

By: \_\_\_\_\_

Steven X. Cui

Reg. No. 44,637

Telephone No. (650) 225-8674



09157

PATENT TRADEMARK OFFICE

FORM PTO-1449

U.S. Dept. of Commerce  
Patent and Trademark Office

Atty Docket No.

P1793R1

Serial No.

10/020,786

## LIST OF DISCLOSURES CITED BY APPLICANT

(Use several sheets if necessary)

Applicant

Laura C. Simmons et al.

Filing Date

13 Dec 2001

Group

not yet assigned

## U.S. PATENT DOCUMENTS

Examiner Initials		Document Number	Date	Name	Class	Subclass	Filing Date
	1	4,816,567	28.03.89	Cabilly et al.			
	2	5,264,365	23.11.93	Georgiou et al.			
	3	5,500,362	19.03.96	Robinson et al.			
	4	5,508,192	16.04.96	Georgiou et al.			
	5	5,585,097	17.12.96	Bolt et al.			
	6	5,639,635	17.06.97	Joly et al.			
	7	5,648,237	15.07.97	Carter, P.			
	8	5,821,337	13.10.98	Carter et al.			
	9	5,840,523	24.11.98	Simmons et al.			
	10	6,008,023	28.12.99	Oppen et al.			
	11	6,027,888	22.02.00	Georgiou et al.			
	12	6,083,715	04.07.00	Georgiou et al.			

## FOREIGN PATENT DOCUMENTS

Examiner Initials		Document Number	Date	Country	Class	Subclass	Translation Yes	No
	13	154,316	11.09.85	EP				
	14	401,384	12.12.90	EP				
	15	WO 93/07896	29.04.93	PCT				
	16	WO 93/17715	16.09.93	PCT				
	17	WO 98/48837	05.11.98	PCT				

## OTHER DISCLOSURES (Including Author, Title, Date, Pertinent Pages, etc.)

	18	Arie et al., "Chaperone Function of FkpA, A Heat Shock Prolyl Isomerase, in the Periplasm of Escherichia coli." <u>Molecular Microbiology</u> , 39(1):199-210 (2001)					
	19	Armour et al., "Recombinant Human IgG Molecules Lacking Fcγ Receptor I Binding and Monocyte Triggering Activities." <u>European Journal of Immunology</u> , 29(8):2613-2624 (Aug 1999)					
	20	Bachmann., "Derivations and Genotypes of Some Mutant Derivatives of Escherichia coli K-12." <u>Escherichia coli and Salmonella Typhimurium: Cellular and Molecular Biology</u> . (Washington, DC: American Society for Microbiology.), Chapter 72, 2:1190-1219 (1987)					
	21	Barbas III et al., "In Vitro Evolution of a Neutralizing Human Antibody to Human Immunodeficiency Virus Type 1 to Enhance Affinity and Broaden Strain Cross-Reactivity." <u>Proc. Natl. Acad. Sci. USA</u> 91(9):3809-3813 (Apr 26, 1994)					
	22	Bass et al., "Hormone Phage: An Enrichment Method for Variant Proteins with Altered Binding Properties" <u>Proteins: Structure, Function, and Genetics</u> 8(4):309-314 (1990)					
	23	Bothmann and Pluckthun., "The Periplasmic Escherichia coli Peptidylprolyl cis,trans-Isomerase FkpA." <u>J. Bio. Chem.</u> 275(22):17100-17105 (Jun 2000)					
	24	Capel et al., "Heterogeneity of Human IgG Fc Receptors." <u>Immunomethods</u> , 4:25-34 (1994)					
	25	Carter et al., "High Level Escherichia coli Expression and Production of a Bivalent Humanized Antibody Fragment." <u>Bio/Technology</u> , 10(2):163-7 (Feb 1992)					

Examiner

Date Considered

\*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<b>FORM PTO-1449</b>  <b>U.S. Dept. of Commerce</b> <b>Patent and Trademark Office</b>  <b>LIST OF DISCLOSURES CITED BY APPLICANT</b> (Use several sheets if necessary)		<b>Atty Docket No.</b> P1793R1	<b>Serial No.</b> 10/020,786
		<b>Applicant</b> Laura C. Simmons et al.	
		<b>Filing Date</b> 13 Dec 2001	<b>Group</b> not yet assigned
<b>OTHER DISCLOSURES (Including Author, Title, Date, Pertinent Pages, etc.)</b>			
26	Carter et al., "Humanization of an Anti-p185 <sup>HER2</sup> Antibody For Human Cancer Therapy" <u>Proc. Natl. Acad. Sci. USA</u> 89:4285-4289 (May 1992)		
27	Chang et al., "High-Level Secretion of Human Growth Hormone by Escherichia coli." <u>Gene</u> 55:189-196 (1987)		
28	Chari et al., "Immunoconjugates Containing Novel Maytansinoids: Promising Anticancer Drugs." <u>Cancer Research</u> 52:127-131 (Jan 1992)		
29	Chen et al., "Chaperone Activity of DsbC." <u>J. Bio. Chem.</u> 274(28):19601-19605 (Jul 1999)		
30	Chothia and Lesk, "Canonical Structures for the Hypervariable Regions of Immunoglobulins" <u>J. Mol. Biol</u> 196:901-917 (1987)		
31	Clynes et al., "Fc Receptors Are Required in Passive and Active Immunity to Melanoma." <u>Proc. Natl. Acad. Sci. USA</u> 95(2):652-656 (Jan 20, 1998)		
32	Cunningham and Wells, "High-Resolution Epitope Mapping of hGH-Receptor Interactions by Alanine-Scanning Mutagenesis" <u>Science</u> 244:1081-1085 (1989)		
33	Daeron, M., "Fc Receptor Biology" <u>Annual Review of Immunology</u> 15:203-234 (1997)		
34	de Haas et al., "Fcγ Receptors of Phagocytes." <u>J. of Laboratory Clinical Medicine</u> 126:330-341 (1995)		
35	Eigenbrot et al., "X-Ray Structures of Fragments From Binding and Nonbinding Versions of a Humanized Anti-CD18 Antibody: Structural Indications of the Key Role of V <sub>H</sub> Residues 59 to 65" <u>Proteins: Structure, Function, and Genetics</u> 18:49-62 (1994)		
36	Fendly, B.M. et al., "Characterization of Murine Monoclonal Antibodies Reactive to Either the Human Epidermal Growth Factor Receptor or HER2/neu Gene Product" <u>Cancer Research</u> 50:1550-1558 (Mar 1, 1990)		
37	Francisco et al., "Agonistic Properties and in Vivo Antitumor Activity of the Anti-CD40 Antibody SGN-14." <u>Cancer Research</u> 60:3225-3231 (Jun 2000)		
38	Friend et al., "Phase I Study of an Engineered Aglycosylated Humanized CD3 Antibody in Renal Transplant Rejection." <u>Transplantation</u> 68(11):1632-1637 (Dec 15, 1999)		
39	Guyer et al., "Immunoglobulin Binding by Mouse Intestinal Epithelial Cell Receptors." <u>J. Immunol.</u> 117(2):587-593 (1976)		
40	Hara et al., "Overproduction of Penicillin-Binding Protein 7 Suppresses Thermosensitive Growth Defect at Low Osmolarity Due to an spr Mutation of Escherichia coli." <u>Micro. Drug Resistance</u> 2(1):63-72 (1996)		
41	Harris., "Therapeutic Monoclonals." <u>Biochemical Society Transactions</u> 23:1035-1038 (1995)		
42	Hawkins et al., "Selection of Phage Antibodies by Binding Affinity Mimicking Affinity Maturation" <u>J. Mol. Biol.</u> 226:889-896 (1992)		
43	Henzel et al., "Analysis of Two-Dimensional Gel Proteins by Mass Spectrometry and Microsequencing." <u>Methods: A Companion to Methods Enzymol.</u> 6:239-247 (1994)		
44	Hurle and Gross., "Protein Engineering Techniques for Antibody Humanization." <u>Curr. Op. Biotech.</u> 5:428-433 (1994)		
45	Idusogie et al., "Mapping of the C1q Binding Site on Rituxan, A Chimeric Antibody with a Human IgG1 Fc." <u>J. Immunol.</u> 164:4178-4184 (2000)		
<b>Examiner</b>		<b>Date Considered</b>	
*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.			

<b>FORM PTO-1449</b>  <b>LIST OF DISCLOSURES CITED BY APPLICANT</b> (Use several sheets if necessary)		U.S. Dept. of Commerce Patent and Trademark Office		Atty Docket No. P1793R1	Serial No. 10/020,786
				Applicant Laura C. Simmons et al.	
				Filing Date 13 Dec 2001	
				Group not yet assigned	
<b>OTHER DISCLOSURES (Including Author, Title, Date, Pertinent Pages, etc.)</b>					
46	Isaacs et al., "A Therapeutic Human IgG4 Monoclonal Antibody that Depletes Target Cells in Humans." <u>Clin. Exp. Immunol.</u> 106:427-433 (1996)				
47	Jackson et al., "In Vitro Antibody Maturation." <u>J. Immunol.</u> 154(7):3310-3319 (1995)				
48	Jones et al., "Replacing the Complementarity-Determining Regions in a Human Antibody with those from a Mouse" <u>Nature</u> 321:522-525 (May 29, 1986)				
49	Kikuchi et al., "The Nucleotide Sequence of the Promoter and the Amino-Terminal Region of Alkaline Phosphatase Structural Gene (phoA) of Escherichia coli." <u>Nucleic Acids Research.</u> 9(21):5671-5678 (1981)				
50	Kim et al., "Localization of the Site of the Murine IgG1 Molecule That is Involved in Binding to the Murine Intestinal Fc Receptor." <u>European Journal of Immunology.</u> 24:2429-2434 (1994)				
51	Kipriyanov and Little., "Generation of Recombinant Antibodies." <u>Mol. Biotech.</u> 12:173-201 (1999)				
52	Kostelny et al., "Formation of a Bispecific Antibody by the Use of Leucine Zippers" <u>Journal of Immunology</u> 148(5):1547-1553 (1992)				
53	Lindmark et al., "Binding of Immunoglobulins to Protein A and Immunoglobulin Levels in Mammalian Sera." <u>J. Immunol. Meth.</u> 62:1-13 (1983)				
54	Marks et al., "By-Passing Immunization: Building High Affinity Human Antibodies by Chain Shuffling" <u>Bio/Technology</u> 10:779-783 (1992)				
55	Matsudaira, P., "Sequence from Picomole Quantities of Proteins Electrophoretically Blotted onto Polyvinylidene Difluoride Membranes" <u>Journal of Biological Chemistry</u> 262(21):10035-10038 (Jul 25, 1987)				
56	Milstein and Cuello, "Hybrid Hybridomas and Their Use in Immunohistochemistry" <u>Nature</u> 305:537-540 (Oct 1983)				
57	Morrison et al., "Chimeric Human Antibody Molecules: Mouse Antigen-Binding Domains with Human Constant Region Domains." <u>Proc. Natl. Acad. Sci. USA</u> 81:6851-6855 (November 1984)				
58	Picken et al., "Nucleotide Sequence of the Gene for Heat-Stable Enterotoxin II of Escherichia coli." <u>Infection and Immunity.</u> 42(1):269-275 (1983)				
59	Pluckthun and Pack., "New Protein Engineering Approaches to Multivalent and Bispecific Antibody Fragments." <u>Immunotechnology.</u> 3:83-105 (June 1997)				
60	Pluckthun et al., "Producing Antibodies in Escherichia coli: From PCR to Fermentation." <u>Antibody Engineering: A Practical Approach</u> , Oxford Press, Chapter 10, pps. 203-252 (1996)				
61	Pluckthun., "Antibodies From Escherichia coli." <u>The Pharmacol. of Monoclonal Antibodies: Handbook of Exp. Pharmacol.</u> , Rosenberg and Moore, eds., Berlin:Springer-Verlag, Chapter 11, Vol. 3:269-315 (1994)				
62	Presta et al., "Humanization of an Anti-Vascular Endothelial Growth Factor Monoclonal Antibody for the Therapy of Solid Tumors and Other Disorders" <u>Cancer Research</u> 57(20):4593-4599 (Oct 15, 1997)				
63	Presta et al., "Humanization of an Antibody Directed Against IgE" <u>J. Immunol.</u> 151(5):2623-2632 (September 1, 1993)				
64	Presta, L., "Antibody Engineering" <u>Curr. Op. Struct. Biol.</u> 2:593-596 (1992)				
65	Proba et al., "Functional Antibody Single-Chain Fragments From the Cytoplasm of Escherichia coli: Influence of Thioredoxin Reductase (TrxB)." <u>Gene.</u> 159:203-207 (1995)				
Examiner				Date Considered	
*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.					

FORM PTO-1449  <b>LIST OF DISCLOSURES CITED BY APPLICANT</b> (Use several sheets if necessary)	U.S. Dept. of Commerce Patent and Trademark Office		Atty Docket No. P1793R1	Serial No. 10/020,786
	Applicant Laura C. Simmons et al.			
	Filing Date 13 Dec 2001		Group not yet assigned	

**OTHER DISCLOSURES (Including Author, Title, Date, Pertinent Pages, etc.)**

66	Ramm and Pluckthun., "The Periplasmic Escherichia coli Peptidylprolyl cis,trans Isomerase FkpA." <u>J. Bio. Chem.</u> 275:17106-17113 (2000)
67	Ravetch and Kinet, "Fc Receptors" <u>Annual Review of Immunology</u> 9:457-492 (1991)
68	Reddy et al., "Elimination of Fc Receptor-Dependent Effector Functions of a Modified IgG4 Monoclonal Antibody to Human CD4." <u>J. Immunol.</u> 164:1925-1933 (2000)
69	Riechmann et al., "Reshaping Human Antibodies for Therapy" <u>Nature</u> 332:323-327 (Mar 24, 1988)
70	Schier et al., "Identification of Functional and Structural Amino-Acid Residues by Parsimonious Mutagenesis." <u>Gene</u> . 169:147-155 (1996)
71	Scholtissek and Grosse, "A Cloning Cartridge of $\lambda$ to Terminator." <u>Nucl. Acids Res.</u> 15(7):3185 (1987)
72	Siebenlist et al., "E. Coli RNA Polymerase Interacts Homologously with Two Different Promoters" <u>Cell</u> 20:269-281 (June 1980)
73	Simmons and Yansura., "Translational Level is a Critical Factor for the Secretion of Heterologous Proteins in Escherichia coli." <u>Nature Biotechnology</u> . 14:629-634 (May 1996)
74	Sims et al., "A Humanized CD18 Antibody Can Block Function Without Cell Destruction" <u>The Journal of Immunology</u> 151(4):2296-2308 (Aug 1993)
75	Sutcliffe, J., "Complete Nucleotide Sequence of the Escherichia coli Plasmid pBR322." <u>Cold Spring Harbor Symposia on Quantitative Biology</u> . 43:77-90 (1979)
76	Thompson et al., "A Fully Human Antibody Neutralising Biologically Active Human TGF $\beta$ 2 for Use in Therapy." <u>J. Immunol. Meth.</u> 227:17-29 (1999)
77	Vaswani and Hamilton., "Humanized Antibodies as Potential Therapeutic Drugs." <u>Ann. Allergy Asthma Immunol.</u> 81:105-119 (Aug 1998)
78	Verhoeven, M. et al., "Reshaping Human Antibodies: Grafting an Antilysozyme Activity" <u>Science</u> 239:1534-1536 (Mar 25, 1988)
79	Vitetta et al., "Redesigning Nature's Poisons to Create Anti-Tumor Reagents" <u>Science</u> 238:1098-1104 (1987)
80	Yanofsky et al., "The Complete Nucleotide Sequence of the Tryptophan Operon of Escherichia coli." <u>Nucleic Acids Research</u> 9(24):6647-6668 (Nov 1981)
81	Yansura and Simmons, "Nucleotide Sequence Selection for Increased Expression of Heterologous Genes in Escherichia Coli." <u>Methods: A Companion to Methods in Enzymology</u> . 4(2):151-158 (1992)
82	Yelton et al., "Affinity Maturation of the BR96 Anti-Carcinoma Antibody by Codon-Based Mutagenesis." <u>J. Immunol.</u> 155:1994-2004 (1995)
83	Zemel-Dreazen and Zamir., "Secretion and Processing of an Immunoglobulin Light Chain in Escherichia coli." <u>Gene</u> . 27(3):315-322 (1984)

Examiner	Date Considered
----------	-----------------

\*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.